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UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF PUBLIC ROADS  
DIVISION OF AGRICULTURAL ENGINEERING

S. H. McCrory, Chief.

MONTHLY NEWS LETTER

Washington, D. C., December 20, 1926.

Mr. McCrory left Washington December 14 for a brief tour of inspection in the Middle West. He visited Mr. Yarnell at Iowa City, Mr. Shafer at Quincy, Ill., Mr. Ramser at Cape Girardeau, Mo., and Mr. Hanson at Old Hickory, Tenn. At Chicago Mr. McCrory conferred with Ed. White on matters relating to farm electrification.

November 17 and 18 the Advisory Council of Farm Equipment Research Survey met at this Office at the call of the Secretary of Agriculture. Prof. Davidson's report on his work during the year was discussed and plans made for the future. The Council conferred with Secretary Jardine and made recommendations which the Secretary approved and which will be the basis of operations during the coming year.

The storage of white potatoes on the farm and particularly in track-side storage houses, is attended by heavy losses due in large measure, it is thought, to improper or lack of insulation, lack of ventilation and damp buildings. Experimental work during the last storage season in Maine, in charge of M. C. Betts, consisted of the remodeling of one section of a four-section house and comparing its operation with an adjacent section under conditions permitting of such comparison. In the remodeled section the ceiling was insulated as protection from low temperatures penetrating from above; the bins were remodeled so as to provide for a movement of air under, around and through the potatoes. Ventilating ducts were also installed. The result was an average bin loss in the improved house of 3.21 per cent and in the unimproved section 4.62 per cent, a difference of 1.41 per cent. There was no sprouting in the improved section but considerable in the other. There was no decay in the improved house while some 541 pounds of decayed potatoes were removed from the other.

A combined sweet and white potato storage was erected in the Eastern Shore district of Virginia from plans prepared in the Division. Observations of its operation during the present storage season are being made. A test of the ventilating system made during the week of November 8, indicated that desirable temperatures may be maintained with reasonable control of the humidity. Further tests will be made during January when the lowest outside temperatures prevail.







In irrigated land the water table rises away from the drain in the form of a curve and this varies greatly. What are the fundamental reasons for this? Can it be predicted within reasonable limits and without field investigations too elaborate for practical use? An investigation has been started by L. T. Jessup at Yakima, Washington and the first point of attack is a study of the relation between form of water table before and after drainage. Preliminary experiments are being made with a soil tank 11 feet long, 30 inches deep and 6 inches wide, balanced so that the slope can be readily changed. Tubes at various points show depth of water. By regulating flow and elevation of water at each end, an effort is made to establish a certain uniform slope of water table, then the water at the lower end is released and results noted. Different types of soil will be tested and the first test is under way.

Chas. A. Bennett is carrying out a promising and interesting investigation in the drying of seed cotton under the direction of Elmer Johnson. Seed cotton in Mississippi, Louisiana, Tennessee and northeastern Arkansas is seriously affected by dampness encountered during the early and final portions of the cotton picking season. Damp seed cotton can not be successfully ginned, and the dampness will also cause serious deterioration in the fibre or lint of the cotton and in the seed as well. Thus far, Mr. Bennett has evolved seven or eight distinct types of dryers, each of which will be constructed on a small scale and tested. The first two test units have shown a removal of moisture amounting to as much as 15 per cent or more of the total weight of damp seed cotton started with. If results with succeeding tests appear as satisfactory as those recently concluded, a dryer will be developed that may be cheaply operated and constructed by any grower or ginner.

R. D. Marsden completed the examination of drainage districts, made with R. P. Teele of the Bureau of Agricultural Economics, in the coastal plain region of the Carolinas, in the piedmont section of northeast Georgia, and in Florida. It was found that very little new land has been brought into cultivation since 1920, and probably a greater acreage then farmed is now lying out or abandoned. The financial situation of many of the districts is unsatisfactory, because the land is not in use. The land boom of 1924 and 1925 in Florida apparently caused a reduction in the crop area, farm lands being subdivided for residence development. That boom aided many drainage districts in a financial way, at least temporarily, by inducing the payment of delinquent drainage taxes. A preliminary report of conditions found in those states, and of those found last spring in the lower Mississippi valley, is to be prepared in the next few weeks.

C. E. Ramser, assisted by W. D. Ellison, is working on a revision of Bulletin 832, "Flow of Water in Dredged Drainage Ditches." This bulletin will be extensively revised by the inclusion of data secured since the original bulletin was published.

B. S. Clayton has submitted his report on the Wolf River, Wisconsin drainage problem, referred to in previous issues of the News Letter.







D. G. Miller has prepared a brief paper entitled "Review of Alkali Action on Portland Cement Concrete" for publication in the bulletin of the National Research Council. This paper outlines the work so far done by various research agencies and the results secured.

F. F. Shafer has been engaged principally in compiling monthly and annual summaries of the operation of the drainage pumping plants upon which he has been keeping records for the past two or three years. The material has been submitted to the Washington Office and will shortly be issued as the second report on this project.

J. G. Sutton reports that the harvesting of the experimental sugar cane plots has been completed and sucrose and purity tests of the crusher juice made covering all of the irrigation experimental plots. Mr. Sutton will spend a part of the winter in the Washington Office compiling the results of the past season's work.

A. H. Senner has prepared two papers for publication in "Fuel Oil" one on "Combustion Computations" and the other entitled "Which is the Most Efficient Oil Burner." It is expected that the Department Circular on "The Domestic Oil Burner" will come from the press shortly after January 1.

Pyrotol shipments hold up well at Dupont, Wash. and Gibbstown, N. J. It is expected that the smokeless powder stored at Old Hickory, Tenn. will all be shipped to the pyrotol cartridging plants during January.

Harry F. Blaney spent the last part of November in the Berkeley Office, largely in connection with the study of "Silt in the Colorado River" which it is hoped soon to submit for publication.

D. W. Bloodgood stated that in making observations of ground-water table in Mesilla Valley, N. M., it was noted that the water table has not commenced to recede in spite of the fact that water has been cut out of the irrigation ditches, the irrigation season being practically over.

Sr. Lorenzo Lepori, Assistant Chief Engineer of the Reclamation Service of Argentina visited A. L. Fellows recently. Sr. Lepori is touring the irrigated section of the country for the purpose of studying our irrigation practices.

In reference to silt work in Texas, R. G. Hemphill notes that in the year from October, 1924 to September, 1925, the final records for the Waco station show a discharge of 1,057,290 acre-feet of water which carried in suspension a total of 17,337,267 tons of silt. On the basis of 62.5 pounds of water per cubic foot, the average percentage of silt by weight for the year is 1.204.



D. O. Miller has prepared a brief paper entitled "Review of the work of the National Research Council in the field of the study of the human eye." This paper is being distributed to the members of the Council and the members of the various research groups and the members of the various research groups.

J. T. Miller has been engaged in the study of the human eye and has been working on the problem of the human eye. He has been working on the problem of the human eye and has been working on the problem of the human eye. He has been working on the problem of the human eye and has been working on the problem of the human eye.

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Mr. Hemphill made a trip to Spur, Texas, to aid the Texas Agricultural Experiment Station with the installation of measuring devices on the terrace run-off project at the substation, the project being to determine the value of terracing in West Texas as a preventive of erosion and as a means of conserving the scanty rainfall in that district for the use of crops.

R. L. Parshall was in the Berkeley Office while attending a meeting of the Irrigation Hydraulics Committee, American Society of Civil Engineers.

Mr. Parshall states that in reviewing the complete scope of the season's check tests on the smaller sizes of Venturi flumes, very good agreement has been obtained with the original experiments made in 1923 and 1924.

Discussing the evaporation observations at the Fort Collins, Colo. cooperative laboratory, Carl Rohwer states that the first month's observations ending October 23 gave the following results.

Large reservoir, 84.6' diameter	- - - - -	3.821 inches
Floating tank, 3' square	- - - - -	4.662 "
U. S. Weather Bureau Standard tank, 4' diam.	- - - - -	4.782 "
Colorado type buried tank, 3' square	- - - - -	4.405 "

A comparison of the results shows that the floating tank evaporated 22.0 per cent more than the large reservoir, the Weather Bureau 25.1 per cent more than the large reservoir, and the Colorado type buried tank 15.3 per cent more than the large reservoir.

Walter L. Stockwell, Jr. made a trip to Luddy Valley, Nevada to go over the flood and storage reservoirs with a group interested in forming an irrigation district and bonding the land to pay for construction of such structures as may be needed.

L. M. Winsor was in Berkeley several days during the month and the balance of the time in the field in Utah, Nevada, and California. Mr. Winsor made a final trip to Woodruff, Utah, to determine the outcome of work undertaken by that community under the newly consolidated irrigation organization, and reports that the work outlined has been completed in every detail.

Geo. A. Mitchell will spend the latter part of this month inspecting sewage irrigation installations in Pennsylvania and Ohio. Mr. Mitchell has in preparation a bulletin on sewage irrigation.



